

Remarks:

Drawings:

In the Office Action, the Examiner objected to the drawings as failing to comply with 37 CFR 1.85(p)(5). The drawings have been amended to overcome the Examiner's objection. In particular, the reference signs of "J1-J3," "P1-P2," "S1," "BT1," and "F1" have been deleted from Figures 3-4. Applicant respectfully submits that all of the indicated features referenced by the above-deleted reference signs, except for "F1," were already referenced by a reference numeral, and such reference numerals were found in the original specification.

With respect to the deletion of "F1," applicant has added the reference numeral "54" to Figure 4 to indicate the feature of a fuse, which is discussed in the original specification at page 6, line 25.

Given applicant's removal of the reference signs objected to by the Examiner, applicant respectfully requests removal of the objection for failure to comply with 37 CFR 1.85(p)(5).

Further, applicant submits an amended sheet 3 of the drawings having Figs. 3 and 4 thereon. If the Examiner approves of the drawings, applicant requests that the Examiner accept the included formal sheet 3.

Specification:

In the Office Action, the Examiner objected to page 4, lines 23 of the specification because of an informality. In particular, the word "course" should have read as "coarse." Applicant gratefully acknowledges the Examiner's assistance in locating this misspelling. The specification has been amended per the Examiner's suggestion to read "coarse."

Additionally, the specification has been amended at page 6, line 25 to include the reference numeral "54" with respect to the feature of a fuse, as discussed above.

Claims:

In the Office Action, the Examiner rejected claims 1-12 under 35 U.S.C. 112, ¶ 1, stating the specification is nonenabling with respect to a plurality of LEDs projecting light toward the stand. Applicant has amended claim 1 to state "a plurality of LEDs mounted on the circuit board for projecting light toward the *stage*." (Emphasis added). Support for this change is found on page 5, lines 17-18, which states "that most of [the LEDs] light is projected upwardly toward the stage 24"

In the Office Action, the Examiner rejected claim 7 under 35 U.S.C. 112, ¶ 2 as being indefinite for failing to particularly point out a proper antecedent basis for the feature of "the battery." Applicant notes that claim 7 does not include the limitation of "a battery" anywhere in the claim, and thus, Applicant respectfully requests further explanation of the Examiner's rejection.

Applicant has noted that claim 11 claims a limitation of "the battery" and that the dependency of claim 11 is on claim 4, and the dependency of claim 4 is on claim 1. Within this line of dependencies, the limitation of "the battery" is not introduced. Therefore, Applicant has amended claim 4 to claim dependency on claim 3, which further claims dependency on claim 2, wherein the limitation of "a battery" is introduced.

In the Office Action, the Examiner rejected claims 9-10, 18, and 25 under 35 U.S.C. 112, ¶ 2 as being indefinite. In particular, with respect to claim 9, the Examiner stated that "it is unclear about the feature relating to the highly-focus illumination is directed to the structure of the LED or just reference to the orientation of the LED with respect to the specimen." (Page 3, #9(a)). Applicant respectfully contends that the originally-filed claim 9 is not indefinite. The originally-filed claim 9 claims "the LEDs hav[ing] a highly focused angle of illumination." Applicant intends to claim that the structure of the LED, as opposed to the orientation of the LED with respect to the specimen, produces the highly-focused angle of illumination. Applicant has amended claim 9 to make clear that the highly-focused angle of illumination is due to the structure of the LEDs by stating *wherein the structure of the LEDs produces a highly-focused angle of illumination*.

With respect to the rejection of claim 18, Applicant has amended claim 18 to clearly state the structure of the LEDs produces the highly-focused angle of illumination. Applicant reiterates his

arguments with respect to claim 9.

With respect to claim 10, the Examiner states that "it is unclear about the formation/orientation of the LED with the angle as claimed. In other words, it is unclear about the axis or the direction used to form the so-called "20 degrees" with the LEDs." (Page 4, #9(b)). Applicant respectfully contends that it is not unclear what is intended by stating the angle of illumination of the LED is approximately 20 degrees. First, it is helpful to note that the LED is positioned perpendicularly on the circuit board. The angle of illumination clearly refers to the distance, in terms of degrees, of illumination of the LED, as opposed to the degree at which the LED is positioned on the board. In the specification at page 5, line 16, Applicant notes that the LEDs have a highly-focused angle of illumination "so that most of their generated light is projected upwardly toward the stage." Given that the Applicant clearly discloses that the orientation of the LEDs points towards the stage and that a highly-focused LED necessarily means that most of the light is concentrated within a relatively small angle of emission, Applicant submits that it is clear that the term "angle of illumination" refers to the angle of emitted light about a vertical axis of symmetry through a length of the LED. Further, Applicant notes in the specification that the optimum angle of illumination is approximately 20 degrees, in contrast to LEDs having a much less focused angle of illumination of 80-180 degrees. (See page 5, lines 19-21 of the Specification). Applicant submits that it would be nonsensical to make this comparison if the term "angle of illumination" referred to something other than the measurement of emitted light, in degrees, about the vertical axis of symmetry through the length of the LED. Applicant submits that there is no other interpretation for the term "angle of illumination" of the LED than about a vertical axis of symmetry through the length of the LED, and thus, Claim 10 is not indefinite with respect to the axis or direction used to form the 20 degrees of illumination.

In the Office Action, the Examiner rejected independent claim 1 under 35 U.S.C. 102(b) as being anticipated by Takahashi. Applicant has amended claim 1 to include the limitation that the LEDs are arranged on the circuit board in a general Y-shaped configuration, which was previously found in now-canceled claim 12. Takahashi clearly does not disclose a Y-shaped configuration, as illustrated in the drawings.

The Examiner rejected claim 12 under 35 U.S.C. 103(a) as being unpatentable over Colvin

in view of Vennard and Yoshinaga. In particular, with respect to the configuration of the LEDs on the circuit board, the Examiner stated that "it is noted that the LEDs are oriented toward the stage or rearranging the LEDs in any suitable position and orientation for the purpose of providing maximum light to the object as well as for satisfying a particular decoration/configuration." (Office Action, page 12, #12). Applicant respectfully submits that the Y-shaped configuration of the LEDs results in increased light intensity beyond mere orientation of the LEDs towards the stage and that such configuration is neither known or disclosed in the prior art of record.

Clearly, to facilitate increased light intensity, the LEDs must be oriented towards the stage and as such, Applicant is not claiming protection on the orientation of the LEDs towards the stage. However, other variables other than the orientation of the LEDs may increase the light intensity, such as the configuration of the LEDs on the circuit board, and merely orienting the LEDs towards the stage does not provide "maximum light," as suggested by the Examiner. (Office Action, Page 12, #20). Applicant believes the Examiner misunderstands the importance of the configuration of the LEDs and is merely reducing the Y-shaped configuration to a decoration or an obvious statement that light is provided by orienting the LEDs towards the stage. The Y-shaped configuration is not for decoration and provides more uniform light intensity than merely orienting the LEDs towards the stage. Given that the Y-shaped configuration of LEDs on the circuit board is not shown or disclosed in any of the prior art references of record, Applicant respectfully requests allowance of amended claim 1.

In the Office Action, the Examiner rejected claims 1-3, 9, 13-14, 16, 18-20, and 25 under 35 U.S.C. 102(b) as being anticipated by Richardson. With respect to claim 1 and the newly added limitation of a Y-shaped configuration of the LEDs on the circuit board, Applicant submits that Richardson does not disclose LEDs arranged in a Y-shape configuration.

With regard to claim 9 and the limitation of a LED having a highly-focused angle of illumination, Richardson does not disclose LEDs having a highly-focused angle of illumination. The Examiner argues that "it is noted that the LEDs are oriented toward the stage for the purpose of providing maximum light to the object." (Office Action, page 5, #12). If the Examiner is suggesting that the limitation in claim 9 for a highly-focused angle of illumination is the same as Richardson disclosing orienting the LEDs towards the stage, Applicant respectfully and strongly disagrees. The

have shown
without
with the support
of unexpected
result

Examiner has misunderstood the purpose of highly-focused LEDs. Specifically, highly-focused LEDs increase the light directed toward the stage instead of allowing the light to disperse over a greater angle. This lessens the amount of LEDs necessary for producing light sufficient to view the specimen, which consequently lessens the battery requirements for operating the cordless microscope.

Applicant's use of highly-focused LEDs, in combination with other features of the present invention, ultimately increases the light intensity without increasing the battery requirements. For example, the battery life of Richardson is only 10-12 hours (line 172 of Richardson), whereas the battery life for the present invention is over 40 hours. (See page 2, lines 20-24 of the specification which states "the present invention provides a microscope having an improved light source assembly that provides sufficient illumination for sophisticated microscopic applications while requiring so little power that it may be operated with a small, rechargeable battery pack that provides over 40 hours of continuous operation from a single charge.").

Applicant reiterates the above arguments with respect to the rejection of claims 18 and 25 under 35 U.S.C. 102(b) as being anticipated by Richardson with respect to the limitation of a highly-focused angle of illumination.

With respect to the rejection of independent claim 13 under 35 U.S.C. 102(b) as being anticipated by Brandorff and under 35 U.S.C. 103(a) as being unpatentable over Colvin in view of Vennard and Yoshinaga, Applicant has amended claim 13 to include the limitation of the light source assembly being removable and replaceable. None of the prior art references of record disclose a light source assembly that may be removed and replaced if the LEDs on the assembly burn out or if broken parts must be replaced on the light source assembly.

With respect to the rejection of independent claim 19 under 35 U.S.C. 102(b) as being anticipated by Richardson, Vennard, Gurz, and Brandorff and under 35 U.S.C. 103(a) as being unpatentable over Colvin in view of Vennard and Yoshinaga, Applicant has amended claim 19 to include the limitation of claim 25 of the LEDs having a highly-focused angle of illumination. Applicant notes that the Examiner's rejection of claim 25 is the same as the rejection of claim 19. The arguments made with respect to the Y-shaped arrangement of the LEDs equally apply to the limitation of the highly-focused LEDs. The Examiner continually states that because these references disclose LEDs oriented in a particular direction, then this is equivalent to the use of highly-focused

LEDs. Applicant respectfully asserts that using highly-focused LEDs to increase the light intensity is significantly different than merely orienting the LEDs in a particular direction. Applicant notes that one of the improvements the present invention provides over the existing prior art is that the present invention provides a cordless microscope producing increased light intensity at a lower power consumption.

With respect to the rejection of dependent claim 10 under 35 U.S.C. 103(a) as being unpatentable over Colvin in view of Vennard and Yoshinaga, applicant respectfully submits arguments similar to the arguments made with respect to the Y-shaped arrangement of the LEDs and the LEDs having a highly-focused angle of illumination. In particular, Applicant notes that none of the references disclose, either implicitly or explicitly, LEDs having an approximate 20° angle of illumination. As noted in the specification at page 5, lines 20-21, most LEDs have an angle of illumination of approximately 80°-180°. As previously noted, Applicant believes the Examiner misunderstands that the purpose of the 20° angle of illumination is to center and focus the emitted light on the specimen to be viewed. This results in less wasted light, which consequently results in less produced heat and power consumption.

Applicant further submits that Colvin and Vennard are non-analogous art and thus, are inappropriate as a reference on which a § 103 rejection may be based. "In order to rely on a reference as a basis for rejection of an applicant's invention, the reference must either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the inventor was concerned." *In re Oetiker*, 977 F.2d 1443, 1446. See also MPEP § 2141.01(a). Colvin discloses a method and apparatus for analyzing failures in integrated circuits. While Colvin does analyze the circuits using a microscope, Colvin does not use a light microscope. Instead, Colvin uses an emission microscope or an electron microscope to view the specimen. (Column 4, lines 3-5). Both an emission and electron microscope are highly sophisticated. The light microscope disclosed in the present invention uses a series of lenses to bend light waves and create a magnified image, whereas the emission microscope operates by tearing electrons off a specimen by the application of a strong electric field. The electron microscope creates the magnified images using electrons instead of light waves. Therefore, although Colvin generally uses a microscope, Colvin does not use a light microscope having a series of lenses. Further, the problem which the present invention addresses is providing a cordless microscope having high light intensity without high power consumption so that

the microscope may be used for an extended period of time. Colvin makes no reference to addressing such a problem, and thus, use of an emission or electron microscope is most certainly not reasonably pertinent to the problem the present invention addresses.

Vennard discloses a digital watch module which uses LEDs provided on a circuit board. Applicant respectfully submits that a digital watch module is clearly not in the field of the Applicant's endeavor. Further, even though Vennard discloses LEDs on a circuit board, the Examiner surely cannot suggest that every electrical item that uses LEDs is pertinent to the problem with which the Applicant is concerned.

The remaining claims all depend directly or indirectly from independent claims 1, 13, 19, and 27 and thus, should be in a condition for allowance.

In view of this amendment and the remarks herein, applicant respectfully submits that claims 1-11, 13-25, and 26-28 are now in allowable condition and requests a Notice of Allowance. In the event of further questions, the Examiner is urged to call the undersigned. Any additional fee which might be due in connection with this application should be applied against our Deposit Account No. 19-0522.

Respectfully submitted,

HOVEY WILLIAMS LLP

BY: 

Thomas B. Luebbering, Reg. No. 37,874
2405 Grand Blvd., Suite 400
Kansas City, Missouri 64108
(816) 474-9050

ATTORNEYS FOR APPLICANT